Claim Amendments

1 to 40. *CANCELLED*

41. *(Currently amended)* A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell *in vitro* a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein comprising SEQ. ID NO:2, or fragment ~~thereof~~ of SEQ. ID NO:2 that contains the telomerase T motif:

Trp-X_{12}-Phe-Phe-Tyr-X-Thr-Glu-X_{10-11}-Arg-X_3-Trp-X_7-Ile (SEQ. ID NO:119)

wherein X_n is a number "n" of unspecified amino acids each chosen independently;
~~having~~ wherein the encoded protein has telomerase catalytic activity when complexed with a telomerase RNA, and

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

42. *(Previously presented)* The method of claim 41, wherein the cell is a human cell.

43. *(Previously presented)* The method of claim 41, further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

44. *(Previously presented)* The method of claim 43, wherein the cell is a human cell.

45. *(Currently amended)* The method of claim 41, wherein the polynucleotide encodes a full-length ~~, naturally-occurring~~ telomerase reverse transcriptase.

46. *(Previously presented)* The method of claim 45, wherein the cell is a human cell.

47. *(Previously presented)* The method of claim 45, further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

48. *(Previously presented)* The method of claim 41, wherein the polynucleotide comprises the telomerase reverse transcriptase encoding sequence of SEQ. ID NO:1.

49. *(Previously presented)* The method of claim 48 wherein the cell is a human cell.

50. *(Previously presented)* The method of claim 48 further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

51. *(Previously presented)* The method of claim 50 wherein the cell is a human cell.

52. *(Previously presented)* The method of claim 41, wherein the recombinant polynucleotide is an expression vector.

53. *(Previously presented)* The method of claim 52 wherein the expression vector is an SV40 virus expression vector, an EBV expression vector, a herpesvirus expression vector, or a vaccinia virus expression vector.

54. *(Previously presented)* The method of claim 52 wherein the expression vector is a retrovirus expression vector.

55. *(Previously presented)* The method of claim 52 wherein the expression vector is an adenovirus expression vector.

56. *(Previously presented)* The method of claim 52 further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.

57. *(Previously presented)* The method of claim 52 wherein the cell is a human cell.

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58. *(Currently amended)*
A method of increasing the proliferative capacity of a mammalian cell, comprising

~~introducing into the cell a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein comprising SEQ. ID NO:2, or fragment thereof having telomerase catalytic activity when complexed with a telomerase RNA,~~

~~whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell~~

contacting the cell with an adenovirus vector comprising a DNA sequence that encodes a telomerase reverse transcriptase protein containing the telomerase T motif:

Trp-X_{12}-Phe-Phe-Tyr-X-Thr-Glu-X_{10-11}-Arg-X_n-Trp-X_7-Ile (SEQ. ID NO:119)

wherein X_n is a number "n" of unspecified amino acids each chosen independently;

wherein the DNA sequence hybridizes to a sequence complementary to SEQ. ID NO:1 at 5°C to 25°C below T_m in aqueous solution at 1 M NaCl;

wherein T_m is the melting temperature of double-stranded DNA having the sequence of SEQ. ID NO:1 under the same reaction conditions; and

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

59. *(Previously presented)* The method of claim 58, wherein the cell is a human cell.

60. *(Currently amended)* The method of claim 58, wherein the ~~polynucleotide~~ DNA sequence encodes a full-length ~~, naturally occurring~~ telomerase reverse transcriptase.

61. *(Currently amended)* The method of claim 58, wherein the ~~polynucleotide~~ DNA sequence comprises the telomerase reverse transcriptase encoding sequence of SEQ. ID NO:1.

62. *(Currently amended)* ~~The method of claim 58, wherein the recombinant polynucleotide is an expression vector~~
The method of claim 58, wherein the DNA sequence encodes SEQ. ID NO:2 or a fragment of SEQ. ID NO:2 having telomerase catalytic activity when complexed with a telomerase RNA.

63-64. *CANCELLED*

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65. *(Previously presented)* The method of claim 62, wherein the cell is an epithelial cell.

66. *(Previously presented)* The method of claim 62, wherein the cell is a keratinocyte.

67. *(Previously presented)* The method of claim 62, wherein the cell is a hair matrix or hair shaft cell.

68. *(Previously presented)* The method of claim 62, wherein the cell is a hepatocyte.

69. *(Previously presented)* The method of claim 62, wherein the cell is an endothelial cell.

70. *(Previously presented)* The method of claim 62, wherein the cell is a cell of the ciliary epithelium of the eye.

71. *(Previously presented)* The method of claim 62, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.

72. *(Previously presented)* The method of claim 62, wherein the cell is a heart cell.

73. *(Previously presented)* The method of claim 62, wherein the cell is a lymphocyte.

74. *(Currently amended)* The method of ~~claim 63~~ claim 41, wherein the cell is an epithelial cell.

75. *(Currently amended)* The method of ~~claim 63~~ claim 41, wherein the cell is a keratinocyte.

76. *(Currently amended)* The method of ~~claim 63~~ claim 41, wherein the cell is a hair matrix or hair shaft cell.

77. *(Currently amended)* The method of ~~claim 63~~ claim 41, wherein the cell is a hepatocyte.

78. *(Currently amended)* The method of ~~claim 63~~ claim 41, wherein the cell is an endothelial cell.

79. *(Currently amended)* The method of ~~claim 63~~ claim 41, wherein the cell is a cell of the ciliary epithelium of the eye.

80. *(Currently amended)* The method of ~~claim 63~~ claim 41, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.

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81. *(Currently amended)* The method of ~~claim 63~~ claim 41, wherein the cell is a heart cell.

82. *(Currently amended)* The method of ~~claim 63~~ claim 41, wherein the cell is a lymphocyte.

83-91. *CANCELLED*